Spatial Trends in Coastal Socioeconomics (STICS) Web Site

This web site offers, in one easy-to-use application, time series geo-referenced socioeconomic data from the U.S. Census Bureau for the last four decadal censuses (1970, 1980, 1990, and 2000) and the Bureau of Economic Analysis (BEA) data (1969 to 2001). Analysis of socioeconomic information can provide useful insights into the demographic, employment and income trends in the nation's rapidly developing coastal regions, and can help coastal managers make more informed decisions regarding program priorities and delivery of services

http://stics.noaa.gov

Value Added

While it is true that socioeconomic information can be obtained from the Census Bureau via the Internet or from CD-ROMs sold by third party vendors, compiling it is a very time-consuming process, requiring the user to extract data variables by individual area. Moreover, data are most readily available at the county level and historic data needed for trend assessment are usually not available. The data are generally not in a format to allow for analysis by coastal areas or by watersheds, and visualization/analysis tools are not available in most cases. This web site provides spatial patterns of socioeconomic data available to more users with different levels of data and analysis needs. The enhanced availability and increased efficiency of data and information distribution presented in this web site enables resource managers to conduct more comprehensive and timely analyses.

Objectives

The primary objective of this web site is to increase awareness and improve access for the coastal stewardship community to socioeconomic information. The web site includes information for all 50 states and provides a set of web-based data analysis and display tools to facilitate data retrieval, mapping, analysis, assessments, comparative studies, and also offers query tools to retrieve data by individual or multiple counties or watersheds as defined in NOAA's Coastal Assessment Framework (CAF).

The user interface on the web site does not require knowledge or use of database management and/or statistical analysis packages. Decadal Census data are combined using their common denominator variables in a format that enables comparisons across time (1970-2000) and space (political and watershed boundaries). Typical content includes demographic information such as population, age, structures, racial and ethnic composition, income distributions, and residential mobility. Personal income and employment data from the Bureau of Economic Analysis (BEA) (1969-2003) are provided at the political and and watershed levels in time series (1969-2001).

Value added to census and BEA data is twofold. First, the information will be placed into NOAA's Coastal Assessment Framework (CAF). The CAF has two organizational structures: coastal counties in coastal zone management, and watersheds based on U.S.G.S. hydrological units. Watersheds include Estuarine Drainage Areas (EDAs) and Coastal Drainage Areas (CDAs). The second value added component is a set of five visualization tools. These include profiles (which include custom graphics and statistical significance tests), thematic mapping, a comparison tool, a data query utility, and a GIS page.

By providing "one-stop-shopping" access to this socioeconomic data in the way described, resource managers will more easily get a comprehensive picture of the geographic patterns of human activity and their relationship to the environment.

The capabilities developed in this web site will be evaluated for benefits of the integrated data delivery system and for determining the feasibility of transferring the capability to other project applications.

Features

The U.S. Census data offered on the site was developed from the "long form" data. These include: detailed popula-

tion, household, and housing characteristics, including income, poverty status, education level, employment, housing costs, immigration, and other variables. The BEA county level data will be area-prorated to obtain watershed estimates.

The web site provides powerful tools for organizing socioeconomic information, including:

- Summary Profile Reports. Two types of profile reports are offered. One is based on U.S. Census data and the other one is based on U.S. BEA data. Based on the geographic study area of interest, a standard profile report is produced.
- Custom Graphic.Based on a user selection of a set of geographic, temporal, and variable (Census or BEA) based parameters, the user is able to produce a graphic that allows a series of customized options to modify the graph. This tool allows the user to choose also the type of graphic to be displayed (i.e. bar chart, pie chart, or scattered).
- Significance Test.The user may also run a non parametric statistical test (Kolgomorov-Smirnov) to determine the statistical significance while comparing socioeconomic information from two study areas.
- Thematic Mapping. Based on a user selection of a set of geographic, temporal, and variable (Census or BEA) based parameters with pull down menu selection features, the user has the capability to produce a thematic map.
- Comparison Tool. This tool allows the user to compare socioeconomic data between two user-selected study areas. The output is a graphic and a table.
- GIS Page (ArcExplorer). This tool allows the user to access the socioeconomic data in a GIS environment (ESRI's ArcExplorer) plus additional data from outside sources. The data portal is driven by Federal Geographic Data Committee (FGDC) socioeconomic metadata describing data sets with the accessible other data stored at distributed sites maintained by their responsible generators.
- Data query and download. The user may browse, sort or choose the extent of the data he or she desires and a new dataset is created for download.
- Assessment reports. Several assessment reports with focus on coastal areas are offered using both the information provided on the web site and other data/ancillary materials.
- Documentation/metadata. A comprehensive documentation, data dictionaries, and FGDC metadata is offered.

Geographical selections

The web site will provide download access to census block level data for each year. In this manner, the data will appear as it did for the given year and the maps will be drawn according to that year's boundaries. In this format the data will be identical to that found in the Census product for that given year.

Additionally, the Census data for all four decades will be normalized to 2000 county and watershed boundaries. The basic procedure was to overlay the boundaries of 2000 county with those of an earlier year. This allowed us to identify how county boundaries had changed between censuses. We then used areal proration coefficients to determine the proportion of persons in each earlier county that went into making up the new 2000 county. This method determined the relative weight to allocate to each portion. These population weights were then applied to the various 1970, 1980, and 1990 county level variables to convert them to 2000 county boundaries. Because of the normalized data feature, aggregations of the time series database to State and Region boundaries and to different size watersheds (i.e. U.S.G.S Hydrologic Cataloging Units) are easily achieved. Watersheds can also be aggregated to EDAs and CDAs. For smaller estuaries, researchers can build their own EDAs and then submit them to NOAA for addition to menu lists. Another important boundary for which the time series

Coastal (Estuarine) Watersheds - Land Only

databases will be offered is for Coastal Zone boundaries.

Uses

The visualization tools allow users to access data for all four decades normalized to 2000 county and watershed boundaries. This allows users to compare common denominator variables for various years within the exact same boundary definitions. In this way "apples-to-apples" comparisons of historic data in 2000 county and watershed definitions and time series analysis (looking at the changes of a given location across time periods) can be performed. Because of the normalized data feature, one can measure just the change in population without having to try to control for changes in boundary definitions. The drawbacks on the time series database are that the dataset is not as exhaustive as the full censuses and that the data will not be expressed at the block level. The time series database will be a subset of the variables for each of the given decades. An advantage of the time series database is that the visualization tools developed to graph, map, and query the data will perform better because it will access aggregated data (i.e. state, county, watershed). Summary reports will be much easier to obtain on the web environment using this database.

For more information, contact:

Percy A. Pacheco
Tel: 301-713-3000 ext. 155
Email: Percy.Pacheco@noaa.gov

Peter C. Wiley
Tel: 301-713-3000 x139
Email: peter.wiley@noaa.gov

NOS – Special Projects
1305 East West Highway
Silver Spring, MD 20910
http://stics.noaa.gov

PCW20040220